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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,521	11/14/2001	Beomsup Kim	BEKAP007	4390
21912	7590	06/15/2004	EXAMINER	
VAN PELT & YI LLP 10050 N. FOOTHILL BLVD #200 CUPERTINO, CA 95014			KINKEAD, ARNOLD M	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

10/004,521

Applicant(s)

KIM, BEOMSUP

Examiner

Arnold M Kinhead

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/21/04
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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DETAILED ACTION

*Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al(Solid State Circuit Conference, 02/7-02/09/2000 cited by applicant).

The reference by Kim et al discloses a phase synchronous multiple LC tank oscillator, see fig. 26.3.2, and col. 1, 3<sup>rd</sup> paragraph, each stage having two inputs/outputs with the phase of oscillation being the same.

*Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over (10-0278551 Korea of record) and further in view of Jeong et al(US 6,094,103 ~~reference~~ ~~reference~~).

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The reference shows a multiple LC oscillator(see figures 8,9, and 10) comprising a plurality of LC oscillator stages that are coupled to preceding and succeeding stages(see figure 10). Each stage having more than two inputs and two outputs going to a plurality of adjacent stages. Note that one stage in figure 9 has more than two outputs for coupling to adjacent stages. Please note mutual inductive elements (L1,2) this is so because of their close proximity on the IC.

The reference does not show four stages for the differential implementation with more than two outputs per stage, and phase synchronous operation is not explicit. With regards the phase synchronous operation, by virtue of the connections as shown, the phase of oscillation of each stage will be the same, i.e., each will oscillate in phase(same) phase.

With regards the use of four stages, the reference by Jeong et al shows four stages(see figure 4) which is conventional due to the fact that both odd and even number of stages is allowed in a differential design. The more stages provides operation at lower frequencies. Please note that all the stages of Jeong et al have more than two outputs for coupling adjacent stages.

In light of the above it would have been obvious for one of ordinary skill in the art to have recognized the phase sync between the stages as a result of the particular coupling and also, the use of even or odd numbers of stages being a conventional design, as shown by Jeong et al, for the differential type ring oscillator. The more stages the oscillator has the lower the frequency of operation.

#### *Response to Arguments*

Applicant's arguments filed 03-26-04 have been fully considered but they are not persuasive.

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The examiner has considered main argument *for the phase of each stage being the same, however, the references do show a similar construction to applicant' s figures and also each oscillation stage of the ring oscillator will provide an equal phase*, such as, 120 degrees(3 stages), or 90(for 4 stages)...and thus synchronous oscillation is achieved.

*Conclusion*

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold M Kinkead whose telephone number is 703-305-3486. The examiner can normally be reached on Mon-Fri, 8:30 am -5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner' s supervisor, Robert Pascal can be reached on 703-308-4909. The fax phone numbers for the organization where this application or

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proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read 'A. Kinkead', is positioned above the printed name.

Arnold M Kinkead  
Primary Examiner  
Art Unit 2817

Arnold Kinkead  
June 06, 2004